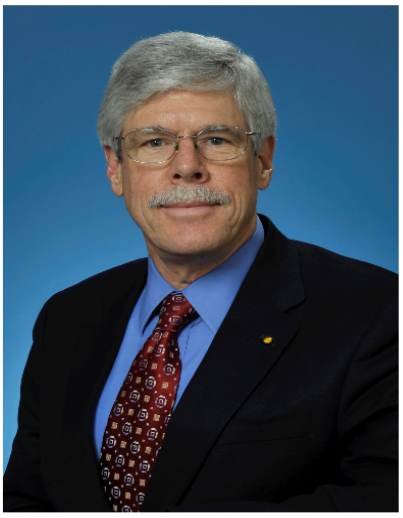
Thomas A. Mehlhorn, Ph.D



Superintendent of the Plasma Physics Division
Naval Research Laboratory

Dr. Thomas A. Mehlhorn is the Superintendent of the Plasma Physics Division of the Naval Research Laboratory (NRL) in Washington DC with responsibility for the technical and administrative management of a broad spectrum of basic and applied research programs involving in-house experimental and research in plasma physics, laboratory discharge and space plasmas, intense electron and ion beams and photon sources, atomic physics, pulsed power sources, radiation hydrodynamics, high-power microwaves, laser physics, advanced spectral diagnostics, and nonlinear systems. These programs have wide-ranging impact including increasing our fundamental understanding of plasmas and developing derivative technologies that enable long-term energy security, detect special nuclear material, increase hypervelocity railgun capabilities, improve material properties, test the survivability of systems in nuclear weapons environments, and predict space weather to enable the reliable operation of DOD assets.

Dr. Mehlhorn was appointed to the Department of Navy Senior Executive Service in November 2009 when he joined NRL to become the Superintendent of the Plasma Physics Division, following more than 31 years of service as a researcher, manager, and senior manager at Sandia National Laboratories in Albuquerque, New Mexico.

From 2006 to 2009 Dr. Mehlhorn was a senior manager in the Pulsed Power Sciences Center at Sandia National Laboratories in Albuquerque, NM. He was the Sandia programmatic lead for research in the Science Campaigns for the National Nuclear Security Agency (NNSA), and managed four departments performing research and development in dynamic materials and shock physics, high energy density physics theory and modeling, advanced radiographic source development, and the application of radiographic machines to subcritical experiments at the Nevada Test Site.

From 1998 to 2006 he managed the High Energy Density Physics and ICF Target Design Department including integrated target designs for the Sandia inertial confinement fusion (ICF) program, the development of a theoretical understanding of X-ray power scaling from Z-pinches, and the development of radiation-MHD and hybrid plasma physics

simulation tools. From 1989 to 1998 he held various line and programmatic management positions in the Sandia Light Ion ICF Program associated with research and development into the generation, transport, focusing, and coupling of intense ion beams from pulsed power accelerators. He began his career at Sandia National Laboratories in 1978 as a Member of Technical Staff and worked on a variety of projects related to the generation, focusing, and interaction of intense beams of electrons and ions with plasmas until he was promoted to department manager in 1989.

Dr. Mehlhorn earned his bachelor's of science, master of science and Ph.D in nuclear engineering from the University of Michigan College of Engineering in 1974, 1976 and 1978, respectively. He was the 2004 recipient of The University of Michigan Engineering Alumni Society Merit Award in Nuclear Engineering and Radiological Sciences (NERS), as the distinguished alumnus of the year.

He is a recipient of a CY2007 NNSA Defense Programs Award of Excellence (DPAE) - Team Award for "Z-pinch predictive simulation capability for Nuclear Weapon experiments" and a CY2008 NNSA DPAE - Team Award for "Quasi-Isentropic Dynamic Compression of Ta to 4Mbar, A Revolutionary Capability on Refurbished Z". In September 2004 he received the prestigious Lockheed Martin NOVA award as manager of the team that produced thermonuclear fusion neutrons using Sandia's Z machine. He also received a Sandia Award for Excellence in 1995 "For achieving a lithium beam focal intensity of 2 TW/cm^2" and an Alan Berman Research Publication Award from NRL in 1983.

Dr. Mehlhorn is a member of the American Physical Society (APS), the American Nuclear Society (ANS), and became a Senior Member of the Institute of Electrical and Electronics Engineers (IEEE) in 2002. In February 2006 he was elected a fellow of the American Association for the Advancement of Science (AAAS) in Physics. He has authored ten papers in refereed journals, is the co-author of over 160 additional papers, and has given invited talks at numerous national and international conferences.

Dr. Mehlhorn serves on the Advisory Board for Plasma and Atomic Physics at GSI (Gesellschaft für Schwerionenforschung), Darmstadt, Germany (2004-present, Chair 2006). He is a member of the NERS Department Advisory Board at The University of Michigan (1996-1999), (2004-). Since 2009 he has been a member of the University of Michigan College of Engineering Alumni Society Board of Governors.